

**ORTHOGONAL CODE DIVISION MULTIPLE ACCESS ON A RETURN LINK**

**ABSTRACT OF THE DISCLOSURE**

[0095] A technique for realizing code synchronism to enable the application of modulation codes needed for implementing orthogonal CDMA modulation for reverse link communications. In a satellite communications system using orthogonal CDMA in the reverse link, a ground station transmits a first pilot signal in the forward link direction, which is acquired and tracked by a terminal or remote station, and used in recovering carrier phase and modulation chip clock timing. The terminal then derives a transmission carrier frequency and chip clock timing to be used, from the recovered forward pilot carrier frequency and chip clock timing. The terminal transmits a second pilot signal in the reverse link direction which, after being received and retransmitted by a satellite, is detected at the ground station. Terminals have the ability to advance or retard the timing of their signals for transmission relative to the timing derived from the forward link pilot signal. The ground station tracks timing, and in some embodiments also tracks frequency, of the terminal pilot signal, and compares these parameters to a reverse link reference signal. Based at least in part on the results of the comparison, the ground station transmits a control signal on the forward link to each terminal, thereby commanding the terminal to advance or retard its respective transmission timing. Each terminal then adjusts its transmission timing and/or frequency in small increments to maintain a desired level of time alignment with the ground station.